UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,481	12/05/2003	Isamu Nakajima	107337-00055	7255

4372	7590	04/05/2006

ARENT FOX PLLC
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

EXAMINER
SONG, JASMINE

ART UNIT	PAPER NUMBER
2188	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

		Application No.	Applicant(s)
Office Action Summary		10/727,481	NAKAJIMA, ISAMU
		Examiner	Art Unit
		Jasmine Song	2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>05 December 2003</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-8</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1,2 and 4-8</u> is/are rejected.

7) ☒ Claim(s) <u>3</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on <u>05 December 2003</u> is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All b) ☐ Some * c) ☐ None of:

      1. ☒ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>12/05/03</u>.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Detailed Action

Specification

1.   The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Drawings

2.   The drawings filed on 12/05/2003 have been approved by the Examiner.

Oath/Declaration

3.   The applicant's oath/declaration has been reviewed by the examiner and is found to conform to the requirements prescribed in 37 C.F.R. 1.63.

Priority

4.   Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

5.   The information disclosure statement (IDS) submitted on 12/05/2003 is in

compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure

statement is being considered by the examiner.

Claim Objections

6.   Claims 1-7 are objected to because of the following informalities:

In claims 1-7, line 1, the Examiner suggests adding -- data-- after "storing" (see

claim 8).

In claim 1, lines 6, the Examiner suggests change "the unit of the data" to – a unit

of the data--.

In claim 7, lines 4, the Examiner suggests adding --,-- before "a power source".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b),
by another filed in the United States before the invention by the applicant for patent or (2) a
patent granted on an application for patent by another filed in the United States before the
invention by the applicant for patent, except that an international application filed under the treaty
defined in section 351(a) shall have the effects for purposes of this subsection of an application
filed in the United States only if the international application designated the United States and
was published under Article 21(2) of such treaty in the English language.

8.   Claims 1-2,5-6 and 8 are rejected under 35 U.S.C. 102(e) as being anticipated by

Douniwa et al., US 6,687,784 B2.

Regarding claim 1, Douniwa teaches a method for storing in a nonvolatile

memory which can be rewritten by a central processing unit, the method comprising the

steps of:

storing storage management information regarding the storage management of

data to be stored (it is taught as management information in col.4, lines 7-15 and lines

24-32) in the nonvolatile memory (it is taught as nonvolatile memory unit 13) (col.4, lines

7-42), the unit of the data being smaller than an erase unit in the nonvolatile memory

(col.3, lines 52-59 and Fig.2);

storing storage completion information (it is taught as a management information

flag such as an end flag EF) indicative of the completion of the storing of the storage

management information (col.4, lines 57-60) in the nonvolatile memory (it is taught as

each page of the nonvolatile memory unit 13 includes the redundancy section 602

having an end flag EF; col.4, lines 43-50); and

judging (it is taught as the controller 11, col.8, lines 37-40) whether the storing of

the storage management information is completed by referring to the storage

completion information (col.11, lines 53-59) after a return from interruption of a process

(it is taught as the power is resupplied, col.11, lines 57) which occurred in the middle of

the storage management information being stored (col.11, lines 50-53).

Regarding claim 8, Douniwa teaches a storage unit for storing data in a

rewritable nonvolatile memory, the unit comprising:

a storage management information store section (it is taught as a translation

table 131 and the assign table 132) for storing storage management information

regarding the storage management of data to be stored (it is taught as management

information in col.4, lines 7-15 and lines 24-32) in the nonvolatile memory (it is taught as

nonvolatile memory unit 13) (col.4, lines 7-42), the unit of the data being smaller than an

erase unit in the nonvolatile memory (col.3, lines 52-59 and Fig.2);

a storage completion information store section (Fig.6, it is taught as EF field 602)

for storing storage completion information (it is taught as a management information flag

such as an end flag EF) indicative of the completion of the storing of the storage

management information (col.4, lines 57-60) in the nonvolatile memory (it is taught as

each page of the nonvolatile memory unit 13 includes the redundancy section 602

having an end flag EF; col.4, lines 43-50); and

a stored information judgment section (it is taught as the controller 11, col.8, lines

37-40) for judging whether the storing of the storage management information is

completed by referring to the storage completion information (col.11, lines 53-59) after a

return from interruption of a process (it is taught as the power is resupplied, col.11, lines

57) which occurred in the middle of the storage management information being stored

(col.11, lines 50-53).

Regarding claim 2, Douniwa further teaches the storage management information includes an address (it is taught as logical address) in the nonvolatile memory designated on an application (it is taught as the host system only recognizes a logical block that forms a logical address space, any program on the host requesting access to an address may be considered an application) and an address (it is taught as physical address) in the nonvolatile memory where the data is actually stored (col.3, lines 64 to col.4, lines 6).

Regarding claim 5, Douniwa further teaches the storage management information (it is taught as management information in col.4, lines 7-15 and lines 24-32) includes a plurality of pieces of information regarding the storage management (it is taught as each page of the block "i" shown in the Fig.7 contains the management information and are stored in the data section 601, col.5, lines 15-32), further wherein the storage completion information is given to each of the plurality of pieces of information regarding the storage management (it is taught as each page of the block is given a flag to indicate the storage completion information, col.5, lines 15-32).

Regarding claim 6, Douniwa further teaches the storage completion information is 1-bit data (it is taught as the flag EF is used one bit data "0" or "1" to indicate ON state or OFF state).

Claim Rejections - 35 USC § 103

9.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

10.   Claims 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Douniwa., US 6,687,784 B2, in view of Suzuki., US 6,526,472 B2.

        Regarding claim 4, Douniwa teaches the claimed invention as shown above

(independent claim 1), Douniwa does not further teach the storage management

information includes copy information regarding the copying of the data in a garbage

collection process. However, Suzuki further teaches that the storage management

information (it is taught as mapping table in Fig.4 and unit management table 202 in

Fig.5) includes copy information regarding the copying of the data (it is taught as active

state information, garbage state information and free state information, col.4, lines 27-

37) in a garbage collection process (col.5, lines 12-25). As taught by Suzuki, when data

referred to by non-volatile memory management information is changed, the non-

volatile memory may simply be invalidated to the garbage state, and the garbage

collected later to recover free blocks (col.4, lines 66 to col.55, lines 11).This is done

because the erase size is larger than the data unit size in the non-volatile memory, and

individual management information may be invalidated, but not rewritten until an entire

erase unit size is erased.

It would have been obvious to one of ordinary skill in the art at the time the

invention was made to utilize the teachings of Suzuki into Douniwa's system such as

the storage management information includes copy information regarding the copying of

the data in a garbage collection process because the garbage collection process will

allow the data referred to by the management information to be updated without

requirement to erase the management information, and track the free and garbage

blocks for later collection.

Accordingly, one of ordinary skill in the art would have recognized this and

concluded that they are from the same field of endeavor. This would have motivated

one of ordinary skill in the art to implement the above combination for the advantages

set forth above.

11.   Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over

Douniwa, in view of Masui., US 6,964,018.

Regarding claim 7, Douniwa teaches the claimed invention as shown above

(independent claim 1) and he also teaches the storage management information and

the storage completion information are stored in a volatile memory (Fig.1, RAM 12

stores the assign table and translation table), Douniwa does not teach that the power

source is supplied from the backed up battery to the RAM. However, Masui teaches that

the power source is supplied from the backed up battery to the RAM (col.14, lines 11-19

and Fig.1). It would have been obvious to one of the ordinary skill in the art at the time

the invention was made to utilize the teachings of Masui into Douniwa's system such as

the power source is supplied from the backed up battery to the RAM because the data

stored in the RAM is maintained even when the main battery or the AC is turned off or is

not available (col.14, lines 15-19).

According, one of ordinary skill in the art would have recognized this and

concluded that they are from the same field of endeavor. This would have motivated

one of ordinary skill in the art to implement the above combination for the advantages

set forth above.

Allowable Subject Matter

12.   Claim 3 is objected to as being dependent upon a rejected base claim, but would

be allowable if rewritten in independent form including all of the limitations of the base

claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject

matter: the prior art of record does not teach or suggest that the storage management

information includes information indicative of the beginning and the completion of the

storing of the data in the nonvolatile memory as claimed in claim 3 in combination with

the other elements set forth in the claimed invention.

Conclusion

13.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

Hagiwara et al   US 6871259 B2

Morishita et el   US 6757792 B2

14.   When responding to the office action, Applicant is advised to clearly point out the

patentable novelty which he or she thinks the claims present in view of the state of the

art disclosed by the references cited or the objections made. He or she must also show

how the amendments avoid such references or objections. See 37 C.F.R. 1.111 (c).

15.   When responding to the office action, Applicants are advised to provide the

examiner with the line numbers and page numbers in the application and/or references

cited to assist examiner to locate the appropriate paragraphs.

16.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Jasmine Song whose telephone number is 571-272-

4213. The examiner can normally be reached on 8:00-4:30.

          If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone

numbers for the organization where this application or proceeding is assigned are 571-

273-8300.

          Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is 703-305-

3900.

Jasmine Song

Patent Examiner

March 31, 2006

Mano Padmanabhan

Supervisory Patent Examiner

Technology Center 2100